The impact of audit committee expertise on audit quality: Evidence from UK audit fees

THE IMPACT OF AUDIT COMMITTEE EXPERTISE ON AUDIT QUALITY: EVIDENCE FROM UK AUDIT FEES

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We are extremely grateful for the very helpful comments of the Associate Editor, Professor Niamh Brennan, and the two anonymous reviewers.

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ABSTRACT

Governance regulators currently place great emphasis on ensuring the presence of financial expertise on audit committees (Sarbanes-Oxley, 2002; UK Corporate Governance Code 2003-2016). Underlying this is a belief that greater expertise enhances the effectiveness of audit committees and, by extension, the quality of the external audit. This study investigates the impact of audit committee expertise on one measure of audit quality - audit fees paid by FTSE350 companies. Our analysis finds that audit committees possessing greater levels of financial expertise are associated with higher audit fees. When we segregate financial expertise between accounting and non-accounting, we find that the positive impact identified is driven by non-accounting expertise. Furthermore, when we separate FTSE100 and FTSE250 firms we find the impact of financial expertise is confined to FTSE250 firms. Our findings are important as they highlight the usefulness of segregating financial expertise between specialists and non-specialists, something which regulators in the UK and in the USA currently do not do. Our findings also highlight the potential value of audit committee expertise in smaller as opposed to larger listed firms, suggesting that the value of expertise to audit quality depends on the specific financial reporting challenges firms face.

Key Words: *Audit Committees, Financial Expertise, Audit fees, Audit Quality, Corporate Governance*

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1. INTRODUCTION

The past twenty five years have witnessed a renewed focus on the governance of companies, motivated largely by a number of high-profile corporate failures, many subsequently found to possess either weak or non-existent governance structures. The almost universal response has been the introduction of stronger governance in the hope that this will serve both to prevent unacceptable behaviour and increase the external transparency of what companies do and how they do it. In an effort to enhance the quality of firms' governance, audit committees have been identified as an important mechanism through which the quality of financial reporting can be enhanced (Sarbanes Oxley, 2002; UK Corporate Governance Code, 2010-2016). A key component of current governance recommendations in the UK is that audit committees should possess at least one member with "recent and relevant financial experience" (UK Corporate Governance Code, 2016: C.3.1). Broadly similar provisions apply elsewhere with, for example, Section 407 of the Sarbanes Oxley Act 2002 (SOX) in the USA also stipulating that at least one member should be a financial expert.

Running parallel to the evolution of audit committee governance, academic research has sought to understand the use and usefulness of various audit committee characteristics with a particular emphasis on whether these characteristics influence audit quality (Zaman, Hudaib & Haniffa, 2011; Chan, Liu & Sun, 2013; Cohen, Hoitash, Krishnamoorthy & Wright, 2014). As discussed by Armstrong, Guay & Weber (2010) and Ghafran & O'Sullivan (2013), much of this research has been motivated by the emergence of increased governance regulation and the identification of a number of characteristics that governance regulators have deemed necessary to achieve greater audit committee effectiveness. As DeFond & Zhang (2014) note in the context of audit committee changes introduced in the USA by SOX, the required changes attempt to increase audit quality by improving client governance and thereby increasing client demand for audit quality.

As a result, this strand of research has investigated the impact of audit committee size, independence, meeting frequency and the presence of financial expertise on a number of audit quality proxies, one of which is audit fees. The overall expectation in this strand of research is that higher levels of the recommended characteristics result in more intensive and more expensive audits. The available empirical evidence suggests that audit committee size and independence have a positive impact on audit fees (Carcello, Hermanson, Neal, & Riley, 2002; Abbott, Parker, Peters & Raghunandan, 2003; Lee & Mande, 2005; Vafeas & Waegelein, 2007; Mitra, Hossain & Deis, 2007; Boo & Sharma, 2008 and Zaman et al. 2011). The findings in respect of meeting frequency are more mixed with Carcello et al. (2002) and Mitra et al. (2007) failing to find a significant impact while Krishnan & Visvanathan (2009) and Zaman et al. (2011) report a positive impact. However, while more frequent meetings may suggest greater committee diligence and hence lower fees, it is also possible that it may signal more serious audit-related issues that may serve to increase client risk and therefore result in higher fees.

In addition to size, independence and meeting frequency, there is a particular interest in the value of audit committee expertise since, as discussed by Tanyi & Smith (2015), financial expertise is important in safeguarding the financial reporting process. Specifically, financial experts on audit committees are seen as being best placed to evaluate those areas of the committee's work requiring technical evaluation and decision-making. Existing research shows no consistent evidence on the impact of an audit committee's financial expertise and audit fees with studies showing a mixture of findings, often undermined by the lack of consistency in the definition of what actually constitutes expertise. For example, in one of the earliest studies, Carcello et al. (2002) define expertise in terms of other directorships and report a positive impact on audit fees. Abbott et al. (2003), although using a broader definition capturing both qualifications and experience, also report a positive impact. However, using broadly similar measures of expertise, both Lee & Mande (2005) in the USA and Zaman et al. (2011) in the UK find no impact. Using narrower definitions of expertise, typically meaning members with professional accounting qualifications and experience, Krishnan &

Visvanathan (2009) report a negative impact while Goodwin-Stewart & Kent (2006) and Rainsbury, Bradbury & Cahn, (2009) find no impact. In summary, therefore, existing research has shown mixed findings in relation to the value of expertise on audit committees but studies also display significant variation in how that expertise is defined.

The purpose of this paper is to undertake a comprehensive study of the impact of audit committee expertise on audit quality as represented by audit fees in large UK companies. Our study takes forward existing knowledge in a number of important respects. First, to our knowledge this is the first UK study to focus specifically on the relationship between financial expertise and audit fees[1]. This is important since UK governance regulations operate on a *comply or explain* basis without legislative backing so firms remain free to make decisions on the presence and extent of financial expertise they deem appropriate for them. Second, as noted earlier, existing studies use a variety of financial expertise measures and report very mixed results. In this study we use both broad (i.e. qualifications and experience) and narrow (i.e. accounting) definitions of expertise in order to understand whether any impact on audit quality is sensitive to the definitions used. Third, in addition to more traditional definitions of expertise, we extend our analysis to incorporate expertise gained by audit committee members doing similar work in other firms to see whether the expertise expected to be gained from broader audit committee involvement impacts on audit quality in the member's home firm. Fourth, we segregate our sample into FTSE100 and FTSE250 firms since size is expected to influence the governance issues faced by firms and, consequently, we are anxious to ascertain whether this also influences the use and usefulness of expertise in enhancing audit quality. A key issue here is whether smaller listed firms place more emphasis on the monitoring provided by financial experts (as well as the nature of that expertise) compared to FTSE100 firms who may be expected to already have significant levels of financial transparency in place (Armstrong et al. 2010). Finally, our study is not just of academic interest but is especially relevant to policymakers in the UK and elsewhere who continually work to seek an improvement in the quality of firm governance and have placed audit committee expertise at the centre of current reforms. By

undertaking a comprehensive study of the relationship between a range of different measures of expertise and audit fees our findings can help regulators to make more evidence-based decisions going forward.

We find that audit committees possessing greater levels of financial expertise are associated with higher audit fees. When we segregate financial expertise between accounting and non-accounting, we find that it is the non-accounting expertise that is driving the higher fees. We also perform separate analysis for FTSE100 and FTSE250 firms and find that the positive impact of expertise is confined to FTSE250 firms, again driven by members with non-accounting expertise. When we extend our definitions of expertise to include audit committee members' experience on other audit committees we find that this does not influence audit fees. Our findings are important as they highlight the usefulness of segregating financial expertise between specialists and non-specialists and also highlight the particular reliance on high quality audits by financial experts without a technical accounting background. This is reassuring as it illustrates that broader financial expertise has a potentially important monitoring role. Our findings relating to firm size suggest that it is the quality of audits in smaller listed firms that benefit from greater expertise on their audit committees. This illustrates the importance of recognising that even firms within the FTSE350 display significant heterogeneity and firms of different size place different emphasis on the monitoring value of financial expertise in their pursuit of audit quality. Our findings are consistent with the notion that financial expertise in larger listed firms may be less important in the pursuit of audit quality, perhaps due to the already greater levels of financial transparency these firms exhibit. In the case of smaller listed firms, however, it seems that financial expertise, especially non-accounting expertise, is important in enhancing the quality of their audits. This evidence is consistent with arguments put forward by Armstrong et al. (2010) who suggest that one reason that companies may utilise more financial expertise is because they believe such expertise will help them to improve the transparency of their financial reporting. More broadly, our results also feed into discussions around the need for researchers and policymakers to appreciate that no single set of

governance recommendations fits all firms and that different firms emphasise different governance instruments depending on the specific governance challenges they face.

The paper proceeds as follows: The next section briefly summarises the development of audit committee regulation in the UK over the past 25 years, focusing specifically on recommendations in respect of financial expertise. This is important as it helps to contextualise our study design as well as our empirical analysis and findings. Section three discusses the theoretical framework for our study as well as reviewing existing literature on the impact of audit committee expertise on various measures of audit quality but specifically audit fees. Section four describes the sample as well as introducing and justifying the variables we use. In section five we discuss our empirical findings while our conclusions and a discussion of the academic and policy implications of our findings are presented in section six.

2. THE EVOLUTION OF AUDIT COMMITTEE GOVERNANCE IN THE UK

Over the past twenty five years the governance of audit committees has developed significantly in the UK. Initial recommendations in respect of the governance potential of audit committees emanated from Cadbury (1992) which recommended that all listed companies establish "properly constituted audit committees as an important step in raising standards of corporate governance" (4.37). The central component of Cadbury's (1992) appropriate test was that audit committees should comprise non-executive directors only and possess a minimum of three members, a majority of whom should be independent non-executives. It further recommended that audit committees should meet no less than twice a year. In the years immediately following the Cadbury (1992) recommendations, virtually all UK-listed companies established audit committees and in a subsequent report of compliance Cadbury (1995) showed widespread compliance with the original recommendations.

The next major change in respect of audit committee governance arose in the wake of the Enron collapse in the US whereby Sir Robert Smith (Smith, 2003) was asked to consider the

effectiveness of audit committees in the UK and his recommendations underpinned subsequent changes incorporated in the revised Combined Code (2003). In particular, the revised Combined Code (2003) endorsed Smith's (2003) recommendations that: audit committees should comprise a minimum of three members; all members should be independent non-executives; at least one member should have recent and relevant financial experience; and audit committees should meet at least three times per year.

Of particular interest to this study is the fact that successive UK Corporate Governance Codes have avoided any attempt to define what it understands as representing "recent and relevant financial experience", leaving companies to decide whether individuals satisfy this requirement and disclosing whether they have complied. The Financial Reporting Council (FRC) did consider replacing the requirement for at least one audit committee member to have 'recent and relevant financial experience' to at least one member to have 'competence in accounting and/or auditing' (FRC, 2015). Even though the FRC ultimately decided against this change[2], it does serve to focus attention on the question as to whether financial expertise on audit committees should be narrowly or more broadly defined and, perhaps more importantly, whether it matters.

A key objective of this study is to understand the use and usefulness of expertise in UK audit committees. In particular, we examine whether broadly based accounting expertise, as currently recommended by the UK Corporate Governance Code, has an impact on audit quality – as represented by audit fees. We extend the analysis by segregating our expertise measure beyond current recommendations by separating our accounting and non-accounting expertise to see if this categorization impacts differently on audit quality. Finally, we segregate our sample between FTSE100 and FTSE250 firms in order to ascertain whether expertise (both broadly and narrowly defined) has a different impact depending on firm size. This is important as it allows us to investigate whether the value of expertise (and the nature of it) depends on the governance challenges different firms face.

3. AUDIT QUALITY, AUDIT FEES AND AUDIT COMMITTEE EXPERTISE

A number of researchers have presented comprehensive reviews of existing research on audit quality as well as presenting revised frameworks to facilitate future research in the field (Francis, 2004; Francis, 2011; Knechel, Niemi & Zerni, 2013; DeFond & Zhang, 2014). Even though the notion of audit quality has traditionally been seen in terms of DeAngelo's (1981) seminal definition of "the market assessed joint probability that a given auditor will both (a) discover a breach in the client's accounting system, and (b) report the breach" (p. 186), more recently researchers have argued that audit quality goes beyond such a binary interpretation. Specifically, DeFond and Zhang (2014) suggest that audit quality should be seen as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics" (p. 281). DeFond and Zhang (2014) argue that it is not just the outcome of the audit process that needs to be considered but also both client demand factors and auditor supply factors as well as regulatory intervention. Similarly, Francis (2011) argues that audit quality should be viewed as a continuum rather than a binary process noting that very few audit failures actually occur but there is likely to be significant variation in the quality of those that exceed the minimum audit quality threshold. Knechel et al. (2013) follow a similar line of argument focusing on the inputs, process and outputs of the audit but also acknowledging the wider context in which the inputs and process of the audit occur.

While the DeFond and Zhang (2014) audit quality framework seeks to present a holistic view on the overall audit quality process, the work of Francis (2011) and Knechel et al. (2013) is primarily concerned with supply-side issues and therefore focuses on audit quality from the auditor's perspective. This is an important distinction in the context of this study as DeFond and Zhang (2014) view the audit-client contracting environment as an important input into the audit process and thereby see audit fees as a key aspect of the audit-client contracting environment. It is argued that audit fees are a useful proxy for audit quality as they are expected to measure the auditor's effort

level, “which is an input to the audit process that is intuitively related to audit quality” (DeFond & Zhang, 2014: P. 289).

DeFond and Zhang (2014) outline a number of advantages in utilizing audit fees in measuring audit quality including the fact that audit fees are continuous and are thereby capable of capturing subtle variations in audit quality as well as the fact that the audit fee literature has sufficiently evolved to employ sophisticated fee models with very high R-squares. The latter point helps to alleviate concerns about correlated omitted variables which may be a more significant issue in other audit quality proxies (DeFond & Zhang, 2014). However, as acknowledged by DeFond and Zhang (2014), the use of audit fees to represent audit quality also has drawbacks. In particular, while higher audit fees may indeed indicate greater audit effort they may also represent an additional risk premium imposed by the auditor to counter an increased probability of financial liabilities arising from the audit (Simunic & Stein, 1996; Seetharaman, Gul & Lynn, 2002; Bell, Doogar & Solomon, 2008). Furthermore, variations in audit fees may also reflect changes in the auditor’s efficiency. Finally, of course audit fees capture both supply and demand factors. Consequently, as highlighted by DeFond and Zhang (2014), researchers must take particular care in interpreting the results from audit fee studies as “an increase in audit fees cannot be unambiguously interpreted as an increase in audit quality” (p. 290).

DeFond and Zhang (2014) also discuss the role of audit committees in their revised audit quality framework emphasising their role in helping audit clients achieve their desired levels of audit quality. Specifically, DeFond and Zhang (2014) note the increased emphasis on audit committee independence and expertise is designed to “increase client demand for audit quality” (p. 306). This motivates us to investigate whether audit committee expertise impacts one aspect of audit quality – the level of audit demand as represented by audit fees. The following paragraphs discuss the potential impact of audit committee expertise on audit fees in more detail.

Audit committees are a fundamental element of governance reforms across most of the developed world and, as noted by Armstrong et al. (2010) and Ghafran and O’Sullivan (2013), as a

result they have attracted a great deal of academic attention with the direction of research heavily influenced by the evolution of their regulatory role. The theoretical underpinning for audit committees is agency theory whereby appropriately constructed audit committees are expected to enhance governance quality, in particular by improving the quality of financial reporting and auditing (Cohen, Krishnamoorthy & Wright, 2004; Turley & Zaman, 2007). Even though issues around the technical expertise of audit committee members has gathered momentum in recent years, the importance of audit committee expertise has been recognized for some time (Kalbers & Fogarty, 1993; Lee & Stone, 1997; Levitt, 1998; Blue Ribbon Committee, 1999). Central to current regulatory developments is an awareness that, in order to really fulfil their monitoring role, audit committees need specific experience and expertise in the area of financial reporting. However, especially in the USA, there has been significant debate as to how best to define such expertise for operational purposes. This lack of consistency as to what financial expertise really means has also flowed over into academic work with studies using different variables to capture expertise and, as a result, producing results that are not easily compared.

In the USA, the Blue Ribbon Committee (BRC, 1999) recommended that firms should establish audit committees with at least three financially literate directors and include at least one financial expert. This recommendation was subsequently adopted by the Securities and Exchange Commission (SEC) in December 1999. However, in the wake of Enron and other financial failures at the beginning of the last decade, Sarbanes-Oxley (SOX) was passed to improve corporate governance generally and the financial reporting process in particular. SOX included new provisions requiring companies to disclose whether or not the audit committee included at least one member who is a financial expert. This requirement reflects the belief of congress that "the effectiveness of the audit committee depends in part on its members' knowledge of and experience in auditing and financial matters" (US Senate, 2002, p.32). The SEC went on to define a financial expert for the purposes of SOX as someone with experience in accounting, supervising financial professionals and overseeing the performance of a company. It should be noted though that the SEC definition of the

attributes required for a financial expert is seen as being quite broad, crucially including supervisory experience (e.g. CEO and board chair) in addition to the narrower financial expertise associated with formal accounting qualifications and/or experience. Similarly in the UK, Smith (2003) recommended that at least one audit committee member should have "recent and relevant financial experience", a recommendation that has been incorporated into all governance recommendations since. As noted in section 2 earlier, UK regulations do not offer a definition of the attributes needed for audit committee members designated as financial experts even though the FRC does suggest the desirability of one member having a professional accounting qualification (FRC, 2015).

In terms of broader audit committee research, studies seem to provide some empirical support for the value of having financial experts on audit committees. For example, Abbott et al. (2004) and Agrawal and Chadha (2005) find that firms with financial experts on audit committees are less likely to experience financial reporting restatements. Furthermore, Bedard, Chtourou and Courteau, (2004) find that the presence of at least one financial expert on the audit committee is negatively associated with aggressive earnings management. Lo, Wong and Firth, (2010) find that firms with financial experts on their audit committees are less likely to engage in transfer pricing manipulations. Bruynseels and Cardinaels (2014) find that the proportion of financial experts on the audit committee is positively related to the demand for audit effort, as measured by the audit fee, while He and Yang (2014) report that the proportion of financial experts on audit committees is associated with significantly lower levels of earnings management.

Subsequent research has sought to incorporate issues around broader versus narrower definitions of expertise in an attempt to ascertain whether the nature of expertise influences audit committee effectiveness. Therefore, for example, Dhaliwal, Naiker and Navissi, (2010) separate expertise into three categories, accounting, finance and supervisory, and find that only accounting expertise (i.e. CPAs, CFOs, financial controllers or other major accounting-related positions) are associated with higher quality accruals. Similarly, in a study of the stock market's reaction to audit committee appointments, DeFond, Hann and Hu (2005) find a more favorable reaction to the

appointment of accounting experts. Krishnan and Visvanathan (2008) find that audit committees with a higher proportion of accounting experts pursue more conservative accounting policies. Carcello, Hollingsworth, Klein and Neal (2006) find evidence of less aggressive earnings management in firms with members with accounting experience on their audit committee while Schmidt and Wilkins (2013) note how companies with more accounting financial expertise on the audit committee are associated with improved financial reporting timeliness. In summary, this evidence suggests that financial expertise on the audit committee may improve the quality of financial reporting more broadly and this may actually be due to accounting expertise rather than broader finance and/or supervisory expertise.

Studies that have investigated the impact of financial expertise on audit fees have not always used similar definitions hence making some of the findings rather difficult to interpret[3]. For example, in one of the first such studies, Carcello et al. (2002) measure audit committee expertise as the average number of other directorships held by audit committee members arguing that greater exposure to other boards provides audit committee members with enhanced monitoring expertise. In their empirical analysis, Carcello et al. (2002) find that expertise has a positive impact on audit fees. Abbott et al. (2003) use the Blue Ribbon Committee (BRC, 1999) definition of financial expertise which is broadly similar to the one subsequently used by the SEC in applying the SOX requirements – i.e. including both accounting and supervisory experience. Abbott et al. (2003) find that expertise has a positive impact on audit fees. Lee and Mande (2005), also utilizing the SEC's broad definition of expertise, find no significant link between audit committee expertise and audit fees.

Krishnan and Visvanathan (2009) use both the broad definition used by the SEC (i.e. financial and supervisory experience) as well as a narrower definition of accounting expertise. In particular, their narrower definition of an "accounting expert" includes members with experience as a CPA, auditor, principal or CFO, controller, or principal or chief accounting officer (Krishnan & Visvanathan, 2009, p. 125). In their empirical analysis Krishnan and Visvanathan (2009) find that, using the

broader measure, the extent of financial expertise has no significant impact on audit fees. However, when they include the narrower accounting definition, they find there is a negative and significant impact on audit fees. Krishnan and Visvanathan (2009) interpret their findings as consistent with the notion that external auditors value the increased quality of monitoring accounting experts are expected to undertake in carrying out their audit committee duties and provide a fee discount for this. Of course, their findings also suggest that auditors do not have a similar view when expertise is more broadly defined. Interestingly, Chan et al. (2013), using a definition of accounting financial expertise similar to Krishnan and Visvanathan (2009), find no significant link with audit fees.

A relatively small number of non-USA studies have investigated the relationship between audit committee expertise and audit fees. In an Australian study, Goodwin-Stewart and Kent (2006) measure financial expertise as the proportion of the audit committee who have an accounting or finance qualification. In their empirical analysis, Goodwin-Stewart and Kent (2006) find no significant impact for expertise. In a New Zealand study, Rainsbury et al. (2009), defining expertise in terms of a dummy variable representing the presence of one or more qualified accountants on the audit committee, also fail to find that expertise has a significant impact on audit fees. Finally, in the only UK study to have addressed the issue, Zaman et al. (2011) measure expertise in terms of "accounting, finance or professional accounting qualifications" (footnote 7, page 176). They then use a dummy variable to denote the presence of at least one such-qualified member, hence their expertise variable. In their subsequent empirical analysis, Zaman et al. (2011) find no evidence that this binary expertise variable has a significant impact on audit fees.

Experience and expertise of audit committee members in that role is also an important aspect of audit committee effectiveness in overseeing the financial reporting process. Vafeas and Waegelein (2007) argue that governance expertise is important in maintaining audit quality and document a positive and significant association between governance expertise and audit fees. They define audit committee governance expertise as the audit committee members' experience of serving on another audit committee. However, in another study, Vafeas (2005) fails to find any

statistically significant link between any such expertise and earnings quality. In the context of UK audit committees, it is reasonable to assume that broader audit committee experience is likely to encourage audit committee members to demand more extensive audits. Therefore, we can expect audit committees with greater other audit committee experience to be associated with higher audit fees.

In light of the above discussion and the evidence reviewed therein, our study has three objectives. First, we seek to ascertain whether the extent of financial expertise, broadly defined, on UK audit committees has an impact on audit quality, as represented by audit fees. Second, we investigate whether the nature of financial expertise on UK audit committees impacts audit quality. Specifically we wish to understand whether accounting and non-accounting expertise impact differently (if at all). Finally, we go beyond financial expertise as typically addressed in the existing literature and also investigate whether audit committee member experience on other audit committees impacts audit quality. The formal hypotheses we seek to test are as follows:

H1: The level of audit committee expertise is positively associated with audit quality and, consequently, audit fees;

H2: The level of accounting expertise on the audit committee is positively associated with audit quality and, consequently, audit fees.

H3: The level of non-accounting expertise on the audit committee is positively associated with audit quality and, consequently, audit fees.

H4: The extent of other audit committee experience of audit committee members is positively associated with audit quality and, consequently, audit fees.

4. SAMPLE, VARIABLES AND METHODOLOGY

The starting point for our analysis was the identification of companies who were in the FTSE350 for the duration of our study period, between 2007 and 2010. This is important since, as mentioned in section two, current governance recommendations in the UK make a distinction between FTSE350

firms and other listed firms whereby the latter are subject to a relatively less onerous set of governance recommendations. Of relevance to this study, for example, is that non-FTSE350 firms are not required to possess a majority of independent non-executives and are also required to possess a minimum of two audit committee members as opposed to three for FTSE350 companies. This resulted in 60 firms being omitted since they were not FTSE350 members throughout our study period. In common with most studies in this area we exclude all financial firms, principally insurance companies and banks, as they have different regulatory environments as well as different reporting conventions compared to other companies. This resulted in the omission of 280 firms. Finally, due to the absence of information on some of our key variables, either due to non-reporting of some items in annual reports or the required financial data not being available on *Datastream*, we omitted a further 69 firms. This resulted in a final sample of 991 company/year observations. In terms of comprehensiveness, this represents 88.5 per cent of non-financial FTSE350 firms. The details of our sample selection procedure are outlined in table 1a. In terms of industrial classification of our sample companies we follow Zaman et al. (2011) in grouping our firms into five sectors: consumer, industrial, mineral exploration, services and utilities. The industrial breakdown of our sample is presented in table 1b.

INSERT TABLES 1a and 1b ABOUT HERE

The next step was to locate the annual reports for our sample companies for the period 2007 to 2010. These were obtained either directly from the companies' own websites or from the filings section of *ThomsonOne Banker*. Access to the annual reports is crucial for our study as we rely on this information to source data for the majority of our variables. In particular, much of the data on board and audit committee characteristics as well as some of the explanatory variables used in prior audit fee studies can only be sourced directly from companies' annual reports. In addition to annual reports, we also utilized *Datastream* to source data for our financial variables.

Our dependent variable is the log of the audit fee as disclosed in each company's annual report. Our explanatory variables can be broadly categorized between those relating to audit committee characteristics and control variables found to be significant in existing audit pricing studies. In terms of audit committee characteristics, we utilize a range of variables to capture the features we are investigating. In terms of audit committee expertise we utilize four variables: (i) a variable representing the proportion of audit committee members with broadly defined financial expertise[4]; (ii) a variable representing the proportion of audit committee members who are accounting experts; (iii) a variable representing the proportion of audit committee members who possess non-accounting expertise; and (iv) we also go beyond knowledge-based expertise in that we also include a variable representing the average number of additional audit committee seats in other UK listed companies held by audit committee members in order to ascertain whether additional audit committee experience has an impact on audit fees.

Following the recommendations of best practice from successive UK corporate governance codes since 2003 (see section two earlier), we include variables representing the remaining three components regulators currently deem necessary for audit committee effectiveness in FTSE350 firms; size, independence and meeting frequency. Specifically, we include separate dummy variables indicating where firms satisfy each of these recommended components as well as separate continuous variables representing the actual size, level of independence and frequency of meetings.

We use a range of control variables, largely motivated by the findings of existing audit pricing research[5]. Since this study utilizes governance disclosures subsequent to Higgs (2003) we are able to identify independent non-executives so our measure of board independence is the proportion of the board represented by independent non-executives. In common with the vast majority of existing studies, the log of assets is included as the most appropriate size variable and the log of the number of subsidiaries is used to represent complexity (Cobbin, 2002; Hay, Knechel & Wong, 2006). Consistent with previous studies, a number of variables are used to represent auditor risk: the proportion of total assets represented both by inventory and accounts receivable, and the firm's

return on assets (Cobbin, 2002; Hay et al., 2006; Zaman et al., 2011). We also include a dummy variable to represent audits undertaken by a London-based auditor since a number of prior UK studies have found that London-based auditors charge higher fees (e.g. Brinn, Peel, & Roberts, 1994; O'Sullivan, 2000; Clatworthy & Peel, 2007; Abdallah, Goergen & O'Sullivan, 2015). We also include a variable representing the amount of non-audit fees the firm simultaneously pays the auditor. Table 2 includes definitions of the variables used in the study.

INSERT TABLE 2 ABOUT HERE

5. DESCRIPTIVE STATISTICS

Table 3 presents descriptive statistics for all our variables. Firms in our sample pay, on average, £1,681,325 for their audit fee with a median payment of £606,000. Of particular interest to this study are the descriptive statistics in relation to audit committee expertise. 78.39 per cent of audit committee members are classified as possessing overall financial expertise. When we disaggregate overall financial expertise between accounting and non-accounting expertise, we find that 34.85 per cent of audit committee members possess specific accounting expertise with 43.54 per cent of audit committee members possessing non-accounting expertise. In unreported figures we find that 85 per cent of audit committees have at least one accounting expert while 86 per cent have at least one non-accounting expert. These figures are reassuring as they suggest that audit committees in large UK listed firms comprise overwhelmingly of members possessing some financial expertise. Consequently, while current recommendations focus on minimum levels of expertise the reality, for larger firms at least, is that audit committees contain significant levels of broadly defined financial expertise with most audit committees containing a rich mix of accounting and non-accounting expertise. On average audit committee members sit on 0.35 other audit committees ranging from none to an average of 2 other audit committee positions. Audit committees in our sample have, on average, 3.4 members with a median composition of 3 members. The requirement for a minimum

of three members in the various UK Corporate Governance Codes seems to be largely adhered to with 91 per cent of sample firms meeting this recommendation. Audit committees in our sample meet on average 3.9 times during the year with a median of 4 meetings per year. 94 per cent of audit committees in our sample meet at least three times per year as currently recommended by governance regulators. 87 per cent of audit committees are comprised only of independent non-executives with the average proportion of independent members on audit committees at 95.29 per cent[6].

In table 4 we include a correlation matrix showing two-way Pearson correlations between all variables included in the study. Correlations are interesting in the context of audit pricing studies as they highlight potential associations between independent variables which then allows us ensure this is controlled for in the multivariate analysis. In this study the correlation matrix also provides some interesting insights into the associations between our key expertise variables and the other variables used in the study. For example, from table 4 we can see that while the level of broad expertise has a positive association with audit fees, when this is separated between accounting and non-accounting expertise it is the non-accounting expertise that retains a significant positive association while the accounting expertise shows a negative association. In addition, the correlations highlight a positive association between broadly defined financial expertise and the holding of other audit committee positions by audit committee members. However, when segregated, it is clear that the significant association is with the accounting expertise only, suggesting a distinct demand for accounting rather than non-accounting expertise on audit committees. Finally, it is also interesting to note that audit committee size is negatively correlated with accounting expertise but positively correlated with non-accounting expertise. This may suggest that as audit committees grow in size, the additional members are more likely to be non-accounting rather than accounting experts.

INSERT TABLES 3 AND 4 ABOUT HERE

6. EMPIRICAL ANALYSIS

Table 5 presents the results of a series of regressions seeking to ascertain the impact of audit committee expertise on audit fees. In designing our empirical tests we follow most existing studies in utilizing OLS regressions. However, since we have many firms appearing in our sample up to four times (i.e. between 2007 and 2010 inclusive) we are conscious of what Petersen (2009) describes as the "unobserved firm effect" whereby the residuals of a given firm may be correlated across years and result in biased standard errors that underestimate the true standard errors. In order to overcome this we follow Petersen's (2009) advice and use clustered standard errors since they "account for the residual dependence created by the firm effect" (p. 437)[7,8]. Specifically, in all regressions we cluster at firm level, this represents 251 different clusters each representing an individual firm. Of course we also have the possibility of time effects but, as discussed in Petersen (2009) and Kezdi (2004), clustered standard errors are unlikely to be appropriate when the number of clusters is small (i.e. four years in this case). Instead, as suggested by Petersen (2009), in addition to clustering by firm, we also use time dummies in all our regression to control for time effects.

In regressions 1a and 1b of table 5 we represent audit committee expertise with the variable representing the proportion of audit committee members with some financial expertise (i.e. our broad measure of expertise). In regression 1a we use dummy variables for the other three audit committee characteristics – indicating a minimum of three committee members; all independent; non-executives and a minimum of three annual meetings. In regression 1b we substitute these dummies with continuous values of these three characteristics – indicating actual audit committee size, the proportion of members who are independent non-executives and the number of meetings. In both regressions 1a and 1b our broad measure of audit committee financial expertise has a positive and significant impact on audit fees suggesting that the extent of audit committee financial expertise does enhance audit quality. Of the remaining audit committee characteristics, the findings from regressions 1a and 1b suggest that meeting frequency also has a positive impact on audit fees with some evidence that audit committees with fewer members than recommended may also be

associated with higher fees. The positive impact of meeting frequency is consistent with such audits being more complex and/or troublesome and, thereby, requiring more attention from both audit committee members and auditors. Similarly, auditors may view audit committees with fewer members than recommended as requiring more effort. Of the remaining control variables, all exert a significant impact in the expected direction with the exception of stock which has a negative rather than a positive impact. However, this may suggest that in current auditing technologies the auditing of stock may actually be fairly straightforward and involve reduced rather than increased audit effort.

In regressions 2 and 3 we segregate broad financial expertise between accounting and non-accounting while controlling for other audit committee characteristics, again both at their dummy and absolute values. In regressions 2a and 2b the proportion of accounting experts on the audit committee has no discernible impact on audit fees. In additional unreported analysis we also run regressions focusing only on professionally qualified accountants but these findings mirror our results in respect of accounting experts, that is showing no significant impact. This evidence suggests that accounting expertise on its own does not significantly impact the extent of auditing undertaken and consequently the audit fee. In regressions 3a and 3b, however, the proportion of non-accounting experts on the audit committee exerts a positive and significant impact on audit fees. This exists regardless of whether the other audit committee variables are included at their dummy or absolute values but the level of statistical significance is greater when dummy values are used. This represents very strong evidence that it is the non-accounting experts who are driving more extensive audits rather than the accounting experts.

In regressions 4a and 4b we replace the traditional expertise variables with a variable capturing audit committee members' holding of audit committee positions elsewhere. Specifically, we use a measure that represents the average number of other audit committees each audit committee member sits on. Following on from hypothesis 4 we are interested to see whether audit effort and fees are driven by audit committee members' experience on other audit committees. As

before, in regression 4a we control for other audit committee characteristics in their dummy form while we use their absolute values in regression 4b. In neither regression are the variables of interest statistically significant. This suggests that the experience and/or expertise that audit committee members obtain from sitting on other audit committees does not seem to influence the extent of audits undertaken.

INSERT TABLE 5 ABOUT HERE

Current governance recommendations in the UK, including those relating to recommended audit committee characteristics, apply equally to all FTSE350 firms. However, even within this categorization we are aware that firm size varies considerably. In particular, FTSE100 firms are significantly larger, attract significantly greater investor and analyst coverage, and generally are perceived as being subject to greater external scrutiny than their FTSE250 counterparts. An important implication of this is whether the impact of financial expertise exerts a different impact on audit quality depending on firm size. In order to understand this we develop our study in two ways. First, we segregate our 991 firm/year observations between those that are FTSE100 firms throughout our study period (n=352) and those that are not (n=639). We compare the mean and median values of each of our explanatory variables between these two sub-samples and highlight any statistical differences. The results of this are presented in table 6. Second, we re-run our OLS regressions separately for FTSE100 and FTSE250 firms to see whether our various expertise measurements impact on audit fees differently for the two subsamples. These results are presented in table 7.

In table 6 we find that significant differences exist between the two sub-samples. In particular, in terms of financial expertise, while the proportion of experts on the audit committee is relatively comparable, representations of the two types of expertise differ significantly between the two sub-samples. Specifically, FTSE250 firms have a significantly higher proportion of accounting experts on their audit committees while FTSE100 firms have a significantly higher proportion of non-

accounting experts. This suggests that, in the audit committees of larger firms, the majority of financial expertise comes from non-accounting sources but most audit committees, regardless of FTSE category, also possess some minimum accounting expertise. Our comparisons also highlight that audit committees in FTSE100 firms are significantly larger, possess a greater proportion of independent members and also meet more frequently than FTSE250 firms. These differences suggest that as audit committees grow, the level of accounting expertise does not increase but the level of non-accounting expertise does. This is interesting in the context of current governance recommendations whereby FTSE350 firms are expected to have a minimum level of financial expertise. Our evidence suggests that firms not only possess this minimum level of financial expertise but they possess it in the narrower (i.e. accounting) definition of expertise. As expected, in terms of the control variables, FTSE100 firms are larger, possess more subsidiaries, possess more independent boards, are more likely to be audited by a London-based auditor, and are more likely to purchase greater levels of non-audit services from their auditors. However, the proportion of assets in the form of both stock and debtors is actually lower in FTSE100 firms.

INSERT TABLE 6 ABOUT HERE

In table 7 we replicate the four regressions from table 5 (using the absolute values of audit committee variables) but focus on our subsamples of FTSE100 and FTSE250 firms separately. In regressions 1a and 1b we use our broad measure of audit committee financial expertise, as currently recommended by the UK Corporate Governance Code. In our FTSE100 sample this variable shows no statistical significance while it is positive and very significant in the FTSE250 subsample. This finding suggests that, in terms of a more intensive audit, financial expertise matters in the case of smaller listed firms but not so for the very largest firms. This is consistent with Armstrong et al.'s (2010) argument that different types of firms may have different needs for financial expertise. In particular, Armstrong et al. (2010) suggest that firms with a desire to monitor their financial reporting more intensely are expected to use financial expertise to help achieve this. Our findings

support this with strong evidence that greater levels of financial expertise on the audit committees of smaller firms have a positive impact on audit quality. In the case of FTSE100 firms, we fail to find that financial expertise influences audit quality. Consistent with Armstrong et al. (2010), this is not surprising as we expect the quality and transparency of financial reporting in FTSE100 firms to be of high quality in any case and financial expertise is unlikely to be able to strengthen this further. Furthermore, as we observed earlier, audit committees in FTSE100 firms are larger, are more independent and meet more frequently which suggests that they also exhibit stronger audit committee governance thus leaving little scope for financial expertise to strengthen their monitoring. The reverse is true in the case of FTSE250 firms where more active monitoring by financial experts may compensate for smaller committees, a relative lack of board independence, and fewer meetings.

When we use the proportion of accounting expertise in regressions 2a and 2b in table 7 we find no significant impact in either of the subsamples. This confirms our earlier findings for the full sample in that accounting expertise does not appear to influence audit intensity regardless of the size of listed firm. In regressions 3a and 3b we use the proportion of non-accounting expertise and find that this has a positive and statistically significant impact on audit fees in the FTSE250 subsample but is not significant in the FTSE100 subsample. This again refines our earlier findings that it is the non-accounting expertise that drives audit quality by showing that this actually predominantly relates to the smaller listed firms. This suggests that non-accounting experts may be less confident in their own ability to directly monitor the quality of their firms' financial reporting but instead encourage their auditors to undertake more intensive audits as a way of ensuring their own monitoring responsibilities are achieved. This is consistent with the work of O'Sullivan (2000) who, in the pre-Cadbury (1992) era in the UK (when audit committees were in their infancy), argued that non-executive directors sought to transfer their monitoring responsibilities to auditors by encouraging more extensive audits. In regressions 4a and 4b we use the average number of audit

committee seats as an alternative measure of expertise but, as in the case of the full sample regressions, this has no discernable impact.

INSERT TABLE 7 ABOUT HERE

We are conscious that endogeneity can be a major methodological concern for this sort of analysis with the possibility that incorrect casual inferences may be drawn from the regression results (Winship & Morgan, 1999; Abdallah et al.,2015)[9]. As highlighted by Abdallah et al. (2015) the issue of endogeneity can be especially pertinent in the case of corporate governance research where not only can explanatory variables influence the dependent variable but also there exists the possibility that the dependent variable itself may influence one or more of the independent variables. In our study, we are aware of this possibility and seek to ensure our results are not consequently prejudiced. For example, while we test for the impact of financial expertise on audit quality it is equally plausible that firms may also seek to view greater expertise on the audit committee as a way of enhancing audit quality. Similarly, while we test the impact of board independence on audit quality it is also plausible that the desire to enhance audit quality may encourage firms to improve the independence of their boards. Furthermore, there is an established strand of research that highlights the possibility that audit fees and non-audit services may be co-determined and a resulting need for researchers to seek to control for this (Lee & Mande, 2005; Whisenant, Sankaraguruswamy & Raghunandan, 2003).

With this in mind we follow the approach of Whisenant et al. (2003) by estimating a series of two-stage least squares regressions. Specifically, after estimating our OLS regressions (as shown in table 5) we then re-estimate these regressions using an instrumental variable approach (i.e. two-stage least squares). Instead of using the actual value of the potentially endogenous variables in the second series of regressions, we substitute the predicted value of these variables (i.e. our instrumental variables). We obtain the predicted values by running regressions whereby we regress the potentially endogenous variables separately on the exogenous variables in the audit fee

regressions in table 5. We do this in three separate regressions focusing on the potential endogeneity of non-accounting expertise, board independence and non-audit fees respectively. The results, which are not tabulated (but available from the authors on request), confirm our earlier findings. Specifically, after seeking to control for possible endogeneity between audit committee expertise, board independence and non-audit fees and audit fees our original findings hold.

6. CONCLUSIONS

This study investigates the impact of audit committee financial expertise on audit quality, as represented by audit fees, for a sample of FTSE350 firms. From a theoretical perspective our study links in with and provides evidence on a contemporary literature on the determinants of audit quality (DeFond & Zhang, 2014) while from a practical perspective the study feeds into current recommendations regarding the characteristics of audit committees. Our findings highlight that financial expertise has a significant impact on audit fees and this is especially the case in relation to the levels of non-accounting expertise on audit committees. Furthermore, we find that the impact of expertise differs between FTSE100 and FTSE250 firms with the representation of non-accounting expertise being especially important in the case of smaller listed firms. We also find that greater audit committee experience does not impact audit fees, regardless of firm size. The absence of a link between the holding of multiple audit committee positions and audit fees suggests that any additional expertise such positions bring may be cancelled out by the expected additional busyness of such audit committee members.

In many ways our main finding that audit quality is influenced by the extent of non-accounting rather than accounting expertise is counter-intuitive since much theory and policy suggests that more effective audit committees are likely to be associated with greater accounting expertise. Specifically, current audit committee recommendations in the UK suggest a minimum level of financial expertise rather than the extent of such expertise while the Financial Reporting Council has deliberated whether that recommendation should be more focused to ensure at least

one member with "accounting or auditing experience" (FRC, 2015) – equivalent to our accounting expertise category. Our study provides some valuable insights on this. In terms of overall financial expertise, on average, just over three quarters of audit committee members possess some financial expertise with 85 per cent of our sample of audit committees having at least one accounting expert, with accounting experts making up around one third of audit committee members. This suggests that, in respect of FTSE350 firms at least, the vast majority of audit committee members possess some financial expertise while the vast majority of audit committees also have a minimum level of accounting expertise – all of which should be reassuring for regulators and may suggest that, in the case of larger firms, insisting on a minimum level of specific accounting expertise is unnecessary. Indeed, our findings clearly illustrate that audit committees are not lacking financial expertise but possess a healthy blend of both accounting and non-accounting expertise

An important contribution of our study is the finding that the extent of non-accounting expertise exerts a positive impact on audit quality. We find that, on average, non-accounting experts comprise just over 40 per cent of audit committee members in our sample, with this proportion around 50 per cent in the case of FTSE100 firms. This is interesting as it emphasizes the level of representation of non-accounting expertise on UK audit committees. Our findings point to the value of such non-accounting expertise in encouraging a more extensive (and more expensive) audit and in this way enhancing the value of the statutory audit. By definition these audit committee members are expected to be less specialized and possess less technical accounting knowledge than their accounting colleagues so may be anxious to encourage more extensive auditing to compensate for their own relative lack of expertise. This is similar to O'Sullivan (2000) who argued that, prior to Cadbury (1992) in the UK, higher levels of non-executive directors pursued additional auditing as a means of seeking to transfer their increasingly onerous monitoring responsibility to auditors. This finding should reassure governance regulators since it clearly shows that non-accounting financial experts may be aware of potential technical accounting shortcomings in their expertise and compensate for this through the insistence on a more thorough audit. In this

regard, our study suggests that both specialist and non-specialist financial experts may seek to enhance audit quality but in different ways. Future research could usefully seek to interview audit committee members in order to get a clearer understanding of how members' experience and expertise impact the degree of audit intensity they desire and in doing so, further improve our understanding of the findings reported here.

The absence of any impact of financial expertise in the FTSE100 firms may be explained by such firms having particularly strong audit committee characteristics so there may be little scope for additional financial expertise to influence the intensity of the audit. Non-FTSE100 firms, on the other hand, on average possess relatively weaker audit committee governance characteristics so may have more scope for financial expertise to influence audit quality. In our sample, compared to FTSE100 firms, FTSE250 firms have lower levels of board independence and lower levels of compliance with best practice recommendations across all audit committee variables. This is consistent with the arguments of Armstrong et al. (2010) who suggest that smaller firms may lack the levels of financial transparency exhibited by larger firms and audit committee expertise may be utilized to seek to compensate for this. While our findings broadly support this, we go on to show that the non-accounting financial experts seek to achieve this via a more extensive audit. This finding also reminds us of the need to appreciate that not all listed firms face the same governance challenges so researchers and policymakers need to be cautious in offering a "one size fits all" prescription and that firms should have the freedom to apply some degree of specificity in the governance arrangements they put in place.

This study focuses on the largest UK listed firms which tend to be under greater external regulation and investor/public scrutiny. An interesting extension of this work would be to look at the levels and impact of audit committee expertise both in non-FTSE350 firms as well as in other listed firms such as on the Alternative Investment Market (AIM). Currently, fully-listed firms outside the FTSE350 are subject to a slightly diluted version of the UK Corporate Governance Code while firms on the AIM face no such requirements. The audit committee choices such smaller firms make

and the audit quality impact of such choices has the potential to further improve our understanding of the value of financial expertise, especially in less regulated environments.

Notes

[1] Zaman et al. (2011) examine a range of audit committee characteristics and audit fees but their definition of expertise is simply a binary variable indicating the presence of a financial expert (broadly defined) or not. Crucially, the Zaman et al. (2011) study covers a period largely prior to the adoption of the Combined Code (2003) which contained the initial UK recommendation relating to audit committee expertise. Indeed, in footnote 10 of their paper, Zaman et al. (2011) mention that the absence of more varied definitions of expertise may be one limitation of their study.

[2] Prior to the publication of the revised UK Corporate Governance Code in 2016, the FRC consulted on whether the existing broader definition of financial expertise should be replaced with a narrower more accounting/auditing requirement. However, in light of significant user feedback in support of the status quo they decided to retain the requirement of "recent and relevant financial experience" in the revised version of the code. Please see:https://www.frc.org.uk/Our-Work/Publications/Audit-and-Assurance-Team/Feedback-Statement-and-Impact-Assessment-Consulta.pdf for insights into this discussion.

[3] As discussed in section two, governance recommendations have focused specifically on four aspects of audit committees – size, independence, expertise and meeting frequency – and research studies tend to follow a similar approach typically investigating the impact of these characteristics in the context of the existing audit pricing model. The following gives a sense of the main findings regarding the relationship between audit committee size, independence and meeting frequency on audit fees while expertise is addressed in more detail in subsequent paragraphs. Abbott et al. (2003) find that more independent audit committees exert a positive impact on audit fees but that meeting frequency has no significance. Vafeas and Waegelein (2007) find that larger audit committees are associated with higher audit fees. Hoitash and Hoitash (2009) report that audit committee size and meeting frequency exert a positive impact on audit fees. The findings of these studies appear to provide support for the notion that audit committees serve as a useful complement to the statutory audit in monitoring management. Beyond the USA context, in an Australian study, Goodwin-Stewart and Kent (2006) find that meeting frequency has a positive impact on audit fees but that the degree of independence has no impact. In the only previous UK study that has examined the impact of audit committee characteristics on audit fees, Zaman et al. (2011) find that audit committee size, independence and meeting frequency all have a positive and significant impact on audit fees.

[4] The current UK Corporate Governance Code (2016), or any of its predecessors, does not provide a precise definition of what it means by financial expertise. As a result, for the purposes of this study, we followed the SEC's definitions, which is also used by DeFond et al. (2005) and other USA-based studies whereby an *accounting financial expert* is defined as a person who has previously held or currently holds a job directly related to accounting and auditing expertise. These include CPAs, CFOs, CAOs, controllers, and auditors. A *non-accounting financial expert* is defined as a person who has experience as an investment banker, financial analyst, or any other financial management role; or experience obtained from supervising the preparation of financial statements (e.g., chief executive officer or company president). We follow this with appropriate modifications for the UK context in identifying financial expertise generally and distinguishing between accounting and non-accounting expertise.

[5] Since there is a vast literature on the determinants of audit pricing it follows that there are also a very large number of variables that could be included as control variables in this study. However, we restrict our list to those commonly used variables that prior UK research has found to be statistically significant. However, even then we have also utlilised more variables than presented here but restricted our final choice to those that showed some statistical significance. However, all of our unreported regressions are available from the authors upon request.

[6] One of the anonymous reviewers suggested that including summary data on board size may help contextualise the audit committee data. Boards in our sample comprise an average of 8.57 directors with a median of 8 directors. The standard deviation is 2.36. Board size ranges from a minimum of 4 directors to a maximum of 19.

[7] We are extremely grateful to an anonymous reviewer for pointing this issue out and also for providing very helpful guidance as to how best to control for it.

[8] Following Petersen (2009) we cluster the standard errors on one dimension only (i.e. firms) since we have 251 such clusters and do not cluster on years since we have only four years. Petersen (2009) argues that with such a small number of years there is little advantage in also clustering on years but using dummy variables to control for the different years should produce similar results. This is the approach we have taken.

[9] We are extremely grateful to an anonymous reviewer for pointing this out and suggesting ways to overcome it.

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Table 1a: Sample selection process

Description	2007	2008	2009	2010	Total
FTSE350	350	350	350	350	1400
Financial and regulated firms	70	70	70	70	280
FTSE350 dropout firms	15	15	15	15	60
Missing Audit Committee and Datastream data	19	17	16	17	69
Final sample	246	248	249	248	991

Table 1b: Industrial breakdown of sample firms

Industry classification of sample firms	N	Percentage
Consumer Goods	218	22.00
General Industrials	296	29.87
Mineral Extraction	79	7.97
Services	342	34.51
Utilities	56	5.65
Total	991	100.00

Table 2: Variable Definitions

Variable Label	Definitions
Log Audit Fee	Log of the audit fee
AC % Financial Expertise	Percentage of audit committee members who are financial experts
AC % Accounting Expertise	Percentage of audit committee members who are accounting experts
AC % Non-Accounting Expertise	Percentage of audit committee members who are non-accounting experts
AC Average Other AC seats	Average additional audit committee seats held in other listed firms by audit committee members
AC Size Dummy	Dummy variable (=1 if there are 3 or more members on the audit committee; =0 otherwise)
AC Size	Number of audit committee members
AC Independence Dummy	Dummy variable (=1 if all members of audit committee are independent non-executive directors; =0 otherwise)
AC % Independence	Percentage of audit committee members who are independent non-executive directors
AC Meetings Dummy	Dummy variable (=1 if the number of audit committee meetings held during the year are 3 or greater; =0 otherwise)
AC Meetings	Number of audit committee meetings held during the year
% Independent Directors	Percentage of board represented by independent non-executive directors
London	Dummy variable (=1 if audit undertaken by a London-based auditor; =0 otherwise)
Log Non Audit	Log of the total non-audit fees paid to auditor
Log Total Assets	Log of total assets
% Stock	Percentage of total assets represented by inventories
% Debtors	Percentage of total assets represented by receivables
ROA	Return on assets
Log Subs	Log of the total number of subsidiaries

Table 3: Descriptive Statistics

	Mean	Median	Std. Deviation	Minimum	Maximum
Audit Fee (£000s)	1,681.00	606.00	3,179.00	34.00	26,000.00
Log Audit Fee	5.85	5.78	0.55	4.53	7.42
AC % Financial Expertise	78.39	75.00	23.89	0.00	100.00
AC % Accounting Expertise	34.85	33.33	21.91	0.00	100.00
AC % Non-Accounting Expertise	43.54	40.00	25.64	0.00	100.00
AC Average Other AC seats	0.35	0.25	0.01	0.00	2.00
AC Size Dummy	0.91	1.00	0.29	0.00	1.00
AC Size	3.40	3.00	0.86	2.00	8.00
AC Independence Dummy	0.87	1.00	0.34	0.00	1.00
AC % Independence	95.29	100.00	12.79	0.00	100.00
AC Meetings Dummy	0.94	1.00	0.24	0.00	1.00
AC Meetings	3.90	4.00	1.23	1.00	12.00
% Independent Directors	48.23	50.00	11.21	10.53	85.71
London	0.61	1.00	0.49	0.00	1.00
Log Non Audit	5.39	5.60	1.31	0.00	7.38
Log Total Assets	9.04	8.96	0.66	7.52	11.19
% Stock	11.31	6.92	15.78	0.00	96.42
% Debtors	16.05	13.78	12.56	0.00	67.09
ROA	9.06	7.55	10.79	-83.57	118.56
Log Subs	1.22	1.26	0.39	0.00	2.23

Table 4 – Correlation Matrix (correlations that are statistically significant at 1% level of significance are shown in bold)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1 Log Audit Fee	1																		
2 AC % Financial Expertise	**.150**	1																	
3 AC % Accounting Expertise	**-.094**	**.347**	1																
4 % Non-Accounting Expertise	**.215**	**.618**	**-.523**	1															
5 AC Average Other AC Seats	-.026	**.147**	**.239**	-.067	1														
6 AC Size Dummy	**.202**	.048	**-.179**	**.193**	-.013	1													
7 AC Size	**.420**	.008	**-.231**	**.201**	**-.089**	**.522**	1												
8 AC Independence Dummy	**.234**	.015	-.041	.048	.072	-.053	.007	1											
9 AC % Independence	**.228**	-.008	-.037	.024	**.083**	-.016	.025	**.937**	1										
10 AC Meetings Dummy	**.187**	.041	.005	.033	**.098**	**.142**	**.114**	**.113**	**.119**	1									
11 AC Meetings	**.358**	**.088**	-.006	**.085**	.025	**.160**	**.215**	**.089**	**.111**	**.405**	1								
12 % Independent Directors	**.471**	.066	-.076	**.123**	-.025	**.278**	**.388**	**.380**	**.415**	**.110**	**.279**	1							
13 London	**.379**	.056	-.028	.075	.030	**.097**	**.198**	.067	.048	**.114**	**.208**	**.305**	1						
14 Log Non Audit	**.494**	**.124**	-.005	**.117**	.030	**.103**	**.239**	**.110**	**.104**	.041	**.139**	**.196**	**.130**	1					
15 Log Total Assets	**.765**	**.083**	**-.109**	**.167**	-.037	**.234**	**.445**	**.251**	**.249**	**.182**	**.312**	**.452**	**.278**	**.403**	1				
16 % Stock	**-.165**	-.042	.041	-.073	.061	-.018	-.008	.017	.028	.017	**-.083**	-.012	-.077	-.049	-.051	1			
17 % Debtors	.005	-.010	.014	-.021	.003	-.028	-.065	-.027	-.020	-.041	-.028	**-.155**	**-.101**	.025	**-.286**	-.062	1		
18 ROA	-.081	.016	-.011	.024	**-.104**	-.014	-.016	.012	.024	-.046	-.044	-.024	-.022	-.046	**-.215**	**-.096**	**.159**	1	
19 Log Subs	**.498**	.065	-.041	**.093**	-.008	.081	**.195**	**.087**	.074	.073	**.173**	**.114**	**.147**	**.209**	**.295**	**-.165**	**.137**	-.058	1

Table 5: OLS regressions examining the impact of audit committee financial expertise on Audit Fees.
Results reported are robust standard errors clustered at firm level (n=251 firm clusters).
*(***, **, * represent statistical significance at 1%, 5% and 10% respectively).*

Variables	Regressions 1a and 1b		Regressions 2a and 2b		Regressions 3a and 3b		Regressions 4a and 4b	
	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value
AC % Financial Expertise	(.0012) 2.14**	(.0011) 2.27**						
AC % Accounting Expertise			(-.0002) -0.30	(-.0001) -0.08				
AC % Non-Accounting Expertise					(.0012) 2.58***	(.0010) 2.23**		
AC Average Other AC Seats							(-.0283) -0.90	(-.0251) -0.78
AC Size Dummy	(-.0726) -1.98**		(-.0741) -1.93*		(-.0884) -2.35**		(-.0722) -1.92*	
AC Independence Dummy	(-.0488) -1.43		(-.0505) -1.47		(-.0517) -1.48		(-.0469) -1.36	
AC Meetings Dummy	(.1045) 2.77***		(.1080) 2.74***		(.1089) 2.77***		(.1110) 2.78***	
AC Size		(.0050) 0.29		(.0023) 0.13		(-.0015) -0.09		(.0016) 0.09
AC % Independence		(-.0009) -0.95		(-.0010) -1.09		(-.0010) -1.02		(-.0009) -0.99
AC Meetings		(.0282) 2.27**		(.0295) 2.34**		(.0291) 2.33**		(.0298) 2.38**
% Independent Directors	(.0065) 4.71***	(.0054) 3.90***	(.0066) 4.70***	(.0056) 3.95***	(.0065) 4.72***	(.0055) 3.95***	(.0065) 4.67***	(.0055) 3.93***
London	(.1453) 4.84***	(.1437) 4.83***	(.1467) 4.88***	(.1448) 4.87***	(.1453) 4.81***	(.1442) 4.82***	(.1478) 4.91***	(.1460) 4.89***
Log Non Audit Fee	(.0633) 4.28***	(.0627) 4.42***	(.0657) 4.47***	(.0649) 4.63***	(.0644) 4.35***	(.0640) 4.52***	(.0661) 4.46***	(.0654) 4.62***
Log total Assets	(.5228) 17.73***	(.5100) 16.63***	(.5227) 17.44***	(.5115) 16.48***	(.5139) 17.51***	(.5088) 16.46***	(.5218) 17.24***	(.5107) 16.32***
% Stock	(-.0022) -2.51**	(-.0022) -2.56**	(-.0022) -2.47**	(-.0022) -2.52**	(-.0021) -2.35**	(-.0022) -2.41**	(-.0022) -2.42**	(-.0022) -2.46**
% Debtors	(.0069) 5.13***	(.0067) 4.74***	(.0068) 4.92***	(.0066) 4.58***	(.0068) 4.96***	(.0066) 4.58***	(.0068) 4.91***	(.0066) 4.56***
ROA	(.0024) 2.24**	(.0023) 2.22**	(.0025) 2.28**	(.0024) 2.31**	(.0024) 2.22**	(.0023) 2.23**	(.0024) 2.17**	(.0024) 2.20**
Log Subsidiaries	(.2595) 6.06***	(.2544) 5.99***	(.2616) 6.11***	(.2564) 6.05***	(.2590) 6.04***	(.2551) 6.00***	(.2606) 6.10***	(.2556) 6.04***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	(-.1521) -0.65	(-.0218) -0.09	(-.0698) -0.29	(.0501) 0.21	(-.0713) -0.31	(.0450) 0.22	(-.0636) -0.27	(.0590) 0.25
F Test	86.62***	83.00***	86.18***	83.90***	87.62***	84.84***	87.20***	85.07***
(Adjusted) R2	0.7881	0.7888	0.7856	0.7865	0.7884	0.7886	0.7860	0.7869

Table 6: Mean and median comparisons of FTSE100 and FTSE250 firms[1]
*(***, ** and * represent statistical significance at 1%, 5% and 10% respectively)*

Variables	**FTSE100 (n=352)**	**FTSE250 (n=639)**	**FTSE100 (n=352)**	**FTSE250 (n=639)**
	Mean	Mean	Median	Median
AC % Financial Expertise	81.11*	78.36	80.00	75.00
AC % Accounting Expertise	30.50	37.61***	33.33	33.33***
AC % Non-Accounting Expertise	50.61***	40.75	50.00***	33.33
AC Average Other AC seats	0.30	0.38***	0.25	0.33*
AC Size Dummy	0.97***	0.87	1.00***	1.00
AC Size	3.80***	3.19	4.00***	3.00
AC Independence Dummy	0.94***	0.80	1.00***	1.00
AC Independence	98.30***	93.09	100.00***	100.00
AC Meetings Dummy	0.99***	0.92	1.00***	1.00
AC Meetings	4.29***	3.69	4.00***	3.00
% Independent Directors	53.87***	45.14	54.55***	44.44
London	0.76***	0.53	1.00***	1.00
Log Non Audit	6.01***	5.05	6.11***	5.30
Log Total Assets	9.64***	8.70	9.54***	8.67
% Stock	7.19	13.57***	6.08	8.03***
% Debtors	13.90	17.24***	12.31	15.02***
ROA	9.06	9.05	7.98	7.31
Log Subs	1.38***	1.13	1.41***	1.18

[1]Comparisons are undertaken using the parametric t-test (means) and the non-parametric Wilcoxon test (medians).

Table 7: OLS regressions examining the impact of audit committee financial expertise on audit fees for FTSE100 and FTSE250 firms. Results reported are robust standard errors clustered at firm level. *(***, **, * represent statistical significance at 1%, 5% and 10% respectively)*

Variables	Regressions 1a and 1b		Regressions 2a and 2b		Regressions 3a and 3b		Regressions 4a and 4b	
	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250	FTSE100	FTSE250
	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value	Coefficient T Value
AC % Expertise	(-.0003) -0.26	(.0015) 2.99***						
AC % Accounting Expertise			(-.0013) -0.92	(.0006) 0.99				
AC % Non-Accounting Expertise					(.0007) 0.80	(.0010) 2.09**		
AC Average Other AC Seats							(.0141) 0.24	(-.0058) -0.18
AC Size	(.0098) 0.36	(.0014) 0.07	(.0051) 0.19	(.0025) 0.12	(.0093) 0.35	(-.0075) -0.36	(.0111) 0.41	(-.0025) -0.12
AC % Independence	(-.0027) -1.17	(.0002) 0.29	(-.0030) -1.30	(.0001) 0.21	(-.0026) -1.16	(.0002) 0.21	(-.0026) -1.13	(.0001) 0.13
AC Meetings	(.0264) 1.28	(.0253) 1.17*	(.0256) 1.25	(.0277) 1.87*	(.0267) 1.28	(.0277) 1.88*	(.0266) 1.28	(.0286) 1.92*
% Independent Directors	(.0090) 3.19***	(.0024) 2.04**	(.0093) 3.25***	(.0025) 2.02**	(.0090) 3.14***	(.0025) 2.08**	(.0090) 3.21***	(.0025) 2.07**
London	(.1411) 2.26**	(.1319) 4.20***	(.1414) 2.34**	(.1286) 4.02***	(.1343) 2.19**	(.1297) 4.09***	(.1370) 2.22**	(.1282) 3.99***
Log Non Audit Fee	(.1051) 1.82*	(.0447) 4.58***	(.1041) 1.81*	(.0467) 4.53***	(.1022) 1.72*	(.0469) 4.51***	(.1041) 1.76*	(.0476) 4.54***
Log total Assets	(.3989) 6.26***	(.4249) 9.83***	(.3996) 6.23***	(.4313) 9.97***	(.3971) 6.23***	(.4261) 9.75***	(.3982) 6.27***	(.4307) 9.93***
% Stock	(.0020) 0.41	(-.0016) -1.99**	(.0013) 0.28	(-.0017) -2.20**	(.0012) 0.24	(-.0014) -1.81*	(.0019) 0.37	(-.0016) -2.01**
% Debtors	(.0051) 1.78*	(.0066) 4.78***	(.0049) 1.70*	(.0064) 4.58***	(.0050) 1.76*	(.0065) 4.51***	(.0051) 1.79*	(.0064) 4.50***
ROA	(.0008) 0.38	(.0008) 0.61	(.0011) 0.51	(.0011) 0.91	(.0011) 0.51	(.0008) 0.64	(.0009) 0.41	(.0011) 0.84
Log Subsidiaries	(.1704) 2.45**	(.2953) 6.71***	(.1675) 2.43**	(.2983) 6.85***	(.1673) 2.43**	(.3011) 6.90***	(.1707) 2.47**	(.3005) 6.90***
Industry Dummy	Included		Included		Included		Included	
Year Dummy	Included		Included		Included		Included	
Constant	(1.106) 1.69*	(.7535) 2.07**	(1.1583) 1.78*	(.7769) 2.12**	(1.088) 1.68*	(.8311) 2.24**	(1.079) 1.65	(.8123) 2.19**
F Test	12.86***	31.38***	12.78***	31.29***	12.45***	31.19***	12.64***	31.52***
(Adjusted) R2	0.6325	0.6554	0.6354	0.6464	0.6336	0.6498	0.6324	0.6453